



OK TO ENTER: /D.S.M./

DECLARATION

09/24/2010

NOW COMES Dr. David Graham, the inventor named in U.S. Utility Patent Application serial number 10/569,221, filed on February 22, 2006 and declares that:

1. his address is 22 Squire Hill Road, Long Valley, New Jersey, 07853, USA;
2. he is a citizen of Great Britain;
3. that he is knowledgeable with regard to the technology set forth in the above-mentioned patent application and hydrate crystal formation in fluids, in general;
4. he has had at least twenty years experience with British Petroleum developing offshore production technologies including hydrate control chemicals;
5. he has issued at least four patents on this type of technology while working for ISP Investments, Wilmington, Delaware;
6. the technology set forth in the specification and claims of the patent application set forth Supra is not chemical hydrate inhibition, but is anti-agglomerate technology;
7. both chemical hydrates inhibitors and anti-agglomerates act to control gas hydrate formation in fluids, but by different mechanisms and they use different methods;
8. hydrate inhibitors act to inhibit the formation of hydrate crystals beyond the temperature that thermodynamics would predict crystal formation, just as salt will inhibit ice formation, both having limiting potencies and so provide degrees of "sub-cooling";

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9. when the inhibitors fail the gas hydrates form in large clumps which can block fluid pipelines;
10. anti-agglomerates act to promote hydrate crystals within the polymer, the exact opposite effect as that of inhibitors;
11. this action within the polymer causes seeding and crystal formation before predicted thermodynamically;
12. the crystals are formed within the voids of the polymer matrix and remain separate and will not form large clumps, i.e. agglomerate;
13. the patent cited by the Examiner, i.e. Shell Internationale Research Maatschappij BV, Wo 01/77270 A 1, hereinafter "Klomp" or "Klomp patent", discusses low dose chemical inhibitors, not agglomeration;

As further proof of the fact that Klomp teaches inhibition of crystal formation rather than anti-agglomeration:


14. in Klomp, the property of inhibiting crystal formation is mentioned more than twenty times and the examples are designed for hydrate inhibitor analysis;
15. in Klomp, the test methods used are designed to pump gas into a sealed reactor to accommodate the volume condensation which occurs with the hydrate crystal formation which is the test required for inhibitor technology;
16. in Klomp, this sets the degrees of hydrate inhibition;
17. in Klomp, this analysis cannot assess anti-agglomerate formation, such analysis is required to be determined using rocking cell technology;
18. anti-agglomerates are tested by rocking cell technology which requires sealed vessels and no gases are introduced;

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19. in summary, what I claim in my application is that the instant invention seeds gas hydrate crystals and induces an early formation of crystals which collect within the polymer. In this manner, the crystals form before they would naturally form, but they form within the polymer structure. In this way, the crystals cannot form large hydrate structures and they remain separated and they cannot form plugs in the pipelines that are used to transport the fluids.

It is believed by me that the language of the new claim 36 of the instant invention overcomes the objections that the Examiner had to the claim 33.

I hereby declare that all statements made herein on my own knowledge are true and that all statement made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.


Dr. David Graham

Date: 9/2/2010